

REMARKS

In the outstanding Official Action, claims 15-21 stand rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement. Claims 15-21 stand rejected under 35 U.S.C. §112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention.

Upon entry of the present amendment, claim 15 will have been amended. The herein-contained amendments should not be considered an indication of Applicants' acquiescence as to the propriety of any of the outstanding rejections. Rather, Applicants have amended the claims in order to advance prosecution and obtain early allowance of claims.

With regard to the 35 U.S.C. §112, first paragraph rejection of claims 15-21, the Examiner asserts that when the head is repeatedly moving down by a predetermined distance, the head has to be *lifted* by the first predetermined distance (at which time the substrate is not contacted) and then moved by the second predetermined distance (at which time the substrate is contacted). The Examiner further asserts that the head can never be contacted and reach the predetermined contact load when the moving and measuring processes are repeated. Applicants respectfully submit that the Examiner's interpretation is incorrect insofar as the head is not lifted, and further, the claims do not indicate such a feature.

As illustrated in Figure 4 of Applicants' specification, the head position shown on the H-Axis coordinate scale does not reverse direction, but rather proceeds in a downward fashion as time progresses. As understood according to the diagram provided by the Examiner, the Examiner considers the first predetermined distance and the second predetermined distance as recited in the claims to equal an entire distance moved and not an incremental distance, to which the claims are directed. In this regard, claim 15 has been amended to recite, *inter alia*, that the

head is incrementally moved downward without being moved upward and that the head moves in increments of either the first predetermined distance or the second predetermined distance.

Further, paragraphs [0005], [0029] and [0030] of Applicants' specification, published as Patent Application Publication No. 2007/0056257, disclose that once the head brings solder bumps 32 of electronic component 31 into contact with electrode pad 34 on the substrate (*e.g.*, touches the substrate), the desired contact load may not be reached and the head can be moved further down, by an increment of  $n2$ , to reach the desired contact load (*e.g.*, amount of force applied to the substrate). The second distance increment  $n2$  is small (*e.g.*, 0.2 to 1.0  $\mu\text{m}$ ) with respect to the size of the substrate. That is, as shown in Figures 5A, 5B, 5C and 5D, solder bump 32 changes shape in response to the application of force.

With regard to the rejection of claim 19, substantially the same arguments apply as made with respect to the rejection of claim 15. The Examiner asserts that the phrase, "when the measured contact load is the same as the previously measured contact load after the measured contact load exceeds zero, the measuring of the contact load is repeated until a different contact load is measured" is not described in the specification in such a way as to enable one skilled in the art to make and/or use the invention. Applicants respectfully submit that that the measured contact load is the contact load that is measured without regard to whether the contact load is zero or exceeds zero. The claimed measured contact load represents a variable which may take on values of zero, or exceed zero. Further, whether a bump on the electronic component makes contact with a corresponding electrode pad on the substrate is determined from the change of the measured contact load. Whether the contact load is zero or exceeds zero is not important to the invention.

The Examiner asserts that the measured contact load, after the measured contact load exceeds zero, is not the predetermined target contact load, the head is repeatedly moving down by that predetermined distance with the first predetermined distance and the second predetermined distance. The Examiner further asserts that the head can never be contacted (with the substrate) and can never reach the predetermined target contact load when the moving and measuring processes are repeated. Applicants respectfully traverse this position by the Examiner. As explained with respect to independent claim 15, a measured contact load may take on a non-zero value that is less than a predetermined target contact load. The head can be moved further down, by an increment of  $n_2$ , that is smaller than the first increment, to reach the desired contact load (e.g., amount of force applied to the substrate).

With regard to the rejection under 35 U.S.C. §112, second paragraph of claims 15-21, Applicants respectfully submit that substantially the same arguments made with respect to the 35 U.S.C. §112, first paragraph rejection of claims 15-21 also apply to this rejection. In particular, with regard to claims 18 and 19, the Examiner has asserted that the phrase “the measure contact load equals the target contact load” is unclear as to whether this measured contact load is the same as the measured contact load is zero or the measured contact load exceeds zero. In this regard, Applicants respectfully submit that the measured contact load is the contact load that is measured without regard to whether the contact load is zero or exceeds zero, which are indicators of what the measured contact load may be. Further, whether a bump on the electronic component makes contact with a corresponding electrode pad on the substrate is determined from the change of the measured contact load.

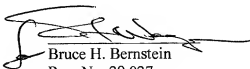
In view of the present amendments and remarks, Applicants respectfully request reconsideration and withdrawal of the 35 U.S.C. §112, first paragraph rejection and the 35 U.S.C. §112, second paragraph rejection of claims 15-21.

Furthermore, Applicants note that no prior art rejection has been set forth against the pending claims. Accordingly, Applicants believe that claims 15-21 are allowable over the art of record once the 35 U.S.C. §112, first and second paragraph rejections are over-come. At least in view of the herein-contained amendments and remarks, Applicants respectfully request an indication of the allowance of claims 15-21.

The amendments to the claims made in this amendment have not been made to overcome the prior art, and thus, should be considered to have been made for a purpose unrelated to patentability, and no estoppel should be deemed to attach thereto.

Should there be any questions, the Examiner is requested to contact the undersigned at the below-listed telephone number.

Respectfully submitted,  
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